

cover near a rain water pool at Paoti village (Rewari district) along the road. It was sitting at the edge of the pool and was seen by torch light. Further south, one more specimen was collected at Bizwar Chauhan village in Alwar district, Rajasthan.

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26. OCCURRENCE OF THE PIG-FACED FILE-FISH *PARAMONACANTHUS CHOIROCEPHALUS* (BLEEKER) (PISCES: PLECTOGNATHI) AT MUMBAI

(With one text-figure)

The occasional finding of fishes and other marine animals at Mumbai, where they do not normally live, has been discussed earlier in this Journal (Chhapgar and Deshmukh, 1964; Chhapgar and Jatar, 1968). Chhapgar (1978) has also recorded the occurrence of two leather-jackets, viz *Osbeckia* (formerly *Alutera*) *scripta* (Osbeck) and *Alutera monoceros* (Linnaeus) from Mumbai. A single specimen of file-fish was brought alive to the Taraporevala Aquarium on 9th September, 1995, and lived there for over a month. It was later identified as *Paramonacanthus choirocephalus* (Bleeker).

Description: Dorsal profile of snout slightly concave, that of back between the two dorsal fins horizontal. Gill opening slightly oblique, its upper end below hind border of eye.

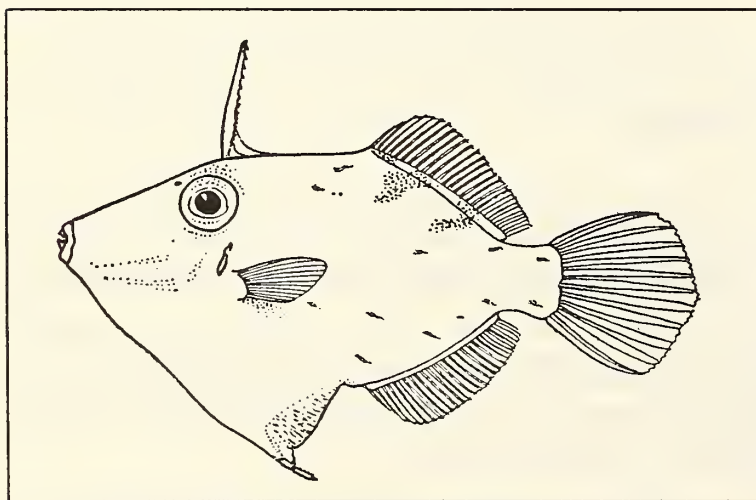


Fig. 1. Pig-faced file-fish,
Paramonacanthus choirocephalus

First dorsal spine above hind border of eye. Anterior border of dorsal spine rough, with many (over 60) tiny upward pointing spinules, posterior border with two rows of slightly longer and stronger downward pointing spines. Origin of anal fin below 2nd dorsal fin, both these fins hyaline. Pelvic shield with a movable spine at its end.

Colour earthy brown with an irregular blackish patch below 2nd dorsal fin.

Morphometry.- D I + 27, P 12, A 27, C 12.

Total length	81 mm
Standard length	66 mm
Length of head (mouth to gill-cover)	22.8 mm
Length of snout (mouth to anterior border of orbit)	16.8 mm
Distance from mouth to base of pelvic spine	32.7 mm
Diameter of eye	6.9 mm
Diameter of orbit	8.4 mm
Supra-orbital width	6.0 mm
Height of body (between origins of 2nd dorsal and anal fins)	29.0 mm
Depth of body (from origin of dorsal spine to pelvic flap)	36.5 mm
Length of dorsal spine	17.0 mm
Length of base of 2nd dorsal fin	18.5 mm
Height of 2nd dorsal fin	8.0 mm
Length of pectoral fin	7.8 mm
Length of base of anal fin	14.5 mm
Length of caudal fin	15.5 mm
Length of caudal peduncle	9.8 mm
Height of caudal peduncle	8.2 mm

Height of body 2.3 in standard length, 2.8 in total length. Head 2.9 in standard length, 3.6 in total length. Eye 3.3 in head, 2.4 in snout, and slightly more than inter-orbital space. Height of 2nd dorsal fin 1/2 in length of snout. Length of caudal peduncle 1.1 in depth. Pectoral fin about equal to distance between eye and lower end of pectoral fin base.

Discussion: While Smith (1953) has separated the leather-jackets (*Alutera*, *Osbeckia* and *Pseudalutarius*) into the family Aluteridae, Fraser-Brunner (1941), Munro (1955), De Beaufort and Briggs (1962), and Jones and Kumaran (1980) have clubbed them with the file-fishes into a common family Monacanthidae. And while the others have placed file-fishes into 20 genera, De Beaufort and Briggs (loc. cit.) have assigned them to *Monacanthus* separating only *Alutera*, *Oxymonacanthus*, *Paraluteres*, *Pseudaluteres* and *Psilocephalus*.

The genus *Paramonacanthus* can be distinguished from *psilocephalus* (= *Anacanthus*) by the absence of a fleshy barb on the lower jaw, and from *Acanthaluteres*, *Alutera*, *Amanses*, *Hanomantus*, *Navodon*, *Osbeckia*, *Paraluteres* and *Thamnaconus* in having a movable pelvic spine. It differs from *Oxymonacanthus* in the absence of a long snout ending in a dorsal mouth, from *Pervagor* in having the dorsal spine originating behind the middle of the eye, and from *Laputa* in not having two rows of 8-12 strong downwardly directed spines on the anterior face of the dorsal spine. It differs from *Stephanolepis* in having a smooth skin with minute scales.

Paramonacanthus choirocephalus can be distinguished from *P. oblongus* (= *barnardi* of Fraser-Brunner) in having a shorter, deeper body — depth 2.3 times in length in the former, 2.8 times in the latter.

Fraser-Brunner (loc. cit.) created a new species, *P. horae*, based on specimens from the east coast of India, Andaman Is, and Maldives, mainly on the grounds that it has 12 rays on the pectoral fin, as against 14 in *P. choirocephalus*. But De Beaufort and Briggs have clarified that the holotype and other specimens in Bleeker's collection all have only 12 rays. (Jones and Kumaran also mention 12 rays, Munro gives counts only for the dorsal and anal fins, while Day mentions 13 rays.)

Paramonacanthus choirocephalus has been previously recorded from Chennai, eastern coast of India, Andaman Is., Lakshadweep Is., Sri Lanka, Thailand, Malaysia and Indonesia eastwards. This is the first record from Bombay (=Mumbai).

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27. *PIERIS BRASSICAE* LINNAEUS (LEPIDOPTERA: PIERIDAE) IN DELHI

There are numerous records of the Large Cabbage White (*Pieris brassicae* L.) from the plains adjoining the Himalaya. It appears sporadically and has been recorded from Amritsar (Sanders 1930), Peshawar and Fatehgarh (Peile 1937), Lucknow, (Rhé Philipe, 1902) and "E. Bengal, Behar" (Maxwell-Lefroy 1909).

Recently, Rose and Venkatesh (1995) bred the species in Patiala from eggs collected locally.

Donahue (1967) predicted the appearance of this butterfly in Delhi. On 10th April, 1996, I found a female *brassicae* beside the road south of Yusuf Sarai in New Delhi. The specimen is worn and the abdomen is flaccid, indicating that oviposition had taken place. On 13th April, 1996, I saw a male of the species in a private garden in Defence Colony and on 15th April, 1996, another male in the company of *Catopsilia pyranthe* L. at Dhaulakuan, in the scrub at the intersection of Ridge Road and Sardar Patel Marg.

In India, it has been suggested that these insects migrate from the hills for the cold weather and early hot weather, breed on cultivated Cruciferae and return to the hills for the summer, although no return flight has been observed (Maxwell-Lefroy, 1909; Wynter-Blyth, 1957).

Female butterflies of this species, fertilised but without mature eggs, are capable of travelling 400 km without food in a few days. The stations on the plains where *brassicae* has been recorded, i.e. Peshawar, Amritsar, Patiala, Lucknow and now Delhi, are well within the dispersal range from Himalayan breeding grounds.

However, perusal of the literature concerning the early stages of this butterfly and

its appearance on the plains of India indicate several gaps in our knowledge.

Several authors have observed that this insect breeds freely on cruciferous plants in the plains during the cold weather and early hot weather. It has been recorded on the wing between late October and late May but there are no records between June and early October. Presumably, the weather is too warm during this period. This observation has led to the assumption that *brassicae* is only a sporadic migrant on the plains.

In other parts of its range, this butterfly is known to be capable of surviving severe and prolonged winter conditions in the pupal stage. There is no work on the tolerance of the diapausing pupae to severe summer conditions experienced on the plains of India. If it is proved that the pupae cannot tolerate the heat, then the traditional explanation of the appearance of this insect on the plains will hold true. On the other hand, if pupae can survive the summer heat, it indicates the need for work to clarify whether *brassicae* is actually a resident on the plains or a sporadic migrant. In any event, we have an insect that is either repeatedly attempting colonisation but failing, or has established a very tenuous foothold on the plains, so tenuous that when compared with its fecundity in the hills and the cooler parts of its range, its scarcity has led to the impression that it is a migrant.

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